AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS

1-17 **(Canceled).**

18. **(Currently Amended)** Method of assigning one or more spreading sequences among a family of spreading sequences to a user of a Multi-Carrier Code Division Multiple Access transmission network, each element of said sequence being, at the level of a transmitter of said network, multiplied by a data item to be transmitted and then transmitted on a corresponding sub-carrier, comprising:

assigning, to said user, said one or more spreading sequences~~, so as to minimize~~ ; and

minimizing a function representing the interference between said one or more sequences, on the one hand, and spreading sequences of a predetermined set, on the other hand, said predetermined set being included in said family of spreading sequences;

wherein the minimizing function dynamically selects the best sequences from the predetermined set of spreading sequences in the family of spreading sequences as the number of needed sequences changes, and the number of selected sequences is less than or equal to the total number of spreading sequences.

19. **(Previously presented)** A method according to claim 18 wherein the predetermined set of spreading sequences includes the set of sequences which are used by the network at the instant of assigning.

20. **(Previously presented)** A method according to claim 18 wherein the predetermined set of spreading sequences includes the set of sequences which are potentially usable after the instant of assigning.

21. **(Previously presented)** A method according to claim 18 wherein said set of spreading sequences includes a favored set of spreading sequences.

22. **(Currently Amended)** A method according to claim ~~1~~ 18 which further includes allocating, from among all the spreading sequences available at the instant of the assigning, the spreading sequence $c^{(i)}$ which minimizes a function $J^{(j,\Omega_k)}$ representing the interference between the spreading sequence $c^{(i)}$ and the spreading sequences of the predetermined or given set, the sequence of rank i thus being assigned if this rank i verifies the following relationship:

$$i = \arg_{j} \min_{j \in \Omega_j, j \notin \Omega_k} \left[J^{(j,\Omega_k)} \right]$$

where Ω_k is the set of the indices of the sequences of the predetermined or given set and Ω_j is the set of the indices of the available sequences.

23. **(Previously presented)** A method according to claim 18 wherein each user is assigned a spreading sequence so as to take into account the transmission quality envisaged for the spreading sequence.

24. **(Previously presented)** A method according to claim 23, wherein the user is assigned a spreading sequence $c^{(i)}$ which minimizes the cost function $J^{(j,\Omega_k)}$ with the spreading sequences $c^{(k)}$ of a predetermined or given set of sequences of index k belonging to a set Ω_k, to a user desiring an average transmission quality, the spreading sequence $c^{(i)}$ which gives an average value to the cost function $J^{(j,\Omega_k)}$ with the spreading sequences $c^{(k)}$ of a predetermined or given set of sequences of index k belonging to a set Ω_k, and to a user whose transmission quality can be a minimum, a spreading sequence $c^{(i)}$.

25. **(Previously presented)** A method according to claim 22, characterized in that the cost function $J^{(j,\Omega_k)}$ representing the interference between the spreading sequence $c^{(i)}$ and sequences $c^{(k)}$ of indices k belonging to a set Ω_k is defined as being equal to the maximum value taken by a function $D^{(j,k)}$ representing the

degradation of the transmission which is induced as a result of the interference between the spreading sequence $c^{(j)}$ and the spreading sequence $c^{(k)}$:

$$J^{(j,\Omega_k)} = \max_{k \in \Omega_k} D^{(j,k)}.$$

26. **(Previously presented)** A method according to claim 22 wherein the cost function $J^{(j,\Omega_k)}$ representing the interference between the spreading sequence $c^{(j)}$ and K sequences $c^{(k)}$ of indices k belonging to a set Ω_k is defined as being equal to the average of the values taken by a function $D^{(j,k)}$ representing the degradation of the transmission which is induced as a result of the interference between the spreading sequence $c^{(j)}$ and the sequence $c^{(k)}$:

$$J^{(j,\Omega_k)} = \frac{1}{K} \sum_{k \in \Omega_k} D^{(j,k)}.$$

27. **(Previously presented)** A method according to claim 25 wherein the degradation function $D^{(j,k)}$ is defined as follows:

$$D^{(j,k)} = E\left[\left(\sum_{m=1}^{M} h'^{(j)}_m c^{(j)}_m c^{(k)}_m\right)^2\right] \quad or \quad D^{(j,k)} = E\left[\left(\sum_{m=1}^{M} h'^{(k)}_m c^{(j)}_m c^{(k)}_m\right)^2\right]$$

where E is the mathematical expectation, M the number of sub-carriers used in the MC-CDMA transmission system and $h'^{(j)}_m$ is the apparent response of the transmission

channel in view of an equalization process implemented in the receiver, the response for the frequency of the sub-carrier of rank m and for the receiver of the user of the sequence of rank j.

28. **(Previously presented)** A method according to claim 25 wherein the degradation function $D^{(j,k)}$ represents the small size of the high-frequency components of a sequence $X^{(j,k)}$ of N elements resulting from the element-by-element product of the sequence $c^{(j)}$ and the sequence $c^{(k)}$.

29. **(Previously presented)** A method according to claim to claim 28 wherein the value of the degradation function $D^{(j,k)}$ is given by the application of a Fourier transform to the sequence $X^{(j,k)}$ of N elements resulting from the element-by-element product of the sequence $c^{(j)}$ and the sequence $c^{(k)}$.

30. **(Previously presented)** A method according to claim 28 wherein the value of the degradation function $D^{(j,k)}$ is given by the number of {+1,-1} and {+1,-1} transitions appearing in the sequence $X^{(j,k)}$ of N elements resulting from the element-by-element product of the sequence $c^{(j)}$ and the sequence $c^{(k)}$.

31. **(Previously presented)** A method according to claim to claim 18 wherein the method is implemented dynamically and includes re-assigning during transmission, at predetermined instants, the K-Q sequences still necessary for the different transmissions, K

being the number of spreading sequences used previously before Q sequences from among K (Q<K) were made available.

32. **(Previously presented)** A method according to claim 31 which further includes;

calculating the cost functions $J^{(j,\Omega_k)}$ for any spreading sequence $c^{(j)}$ where j belongs to the set Ω_Q of the indices of the sequences made available,

calculating the cost functions $J^{(j,\Omega_k)}$ for any spreading sequence $c^{(k)}$ where k belongs to the set Ω_{K-Q} of the indices of the sequences still used,

as long as there exists one or more spreading sequences of index $j_o \in \Omega_Q$ and one or more spreading sequences of index $k_o \in \Omega_{K-Q}$ such that $J^{(j_o,\Omega_k)} < J^{(k_o,\Omega_k)}$ de-allocating the sequence $c^{(k_M)}$ defined by:

$$k_M = \arg_k \max_{k \in \Omega_{K-Q}} \left[J^{(k,\Omega_k)} \right],$$

and allocating instead the sequence $c^{(k_M)}$ defined by:

$$k_m = \arg_k \max_{k \in \Omega_Q} \left[J^{(k,\Omega_k)} \right].$$

33. **(Previously presented)** Assigning method according to Claim 31, which further includes;

calculating the cost functions $J^{(j,i_0)}$ for any spreading sequence $c^{(j)}$ where j belongs to the set Ω_Q of the indices of the sequences made available,

calculating the cost functions $J^{(k,i_0)}$ for any spreading sequence $c^{(k)}$ where k belongs

to the set Ω_{K-Q} of the indices of the sequences still used,

as long as there exists one or more spreading sequences of index $j_o \in \Omega_Q$ and one or more spreading sequences of index $k_o \in \Omega_{K-Q}$ such that $J^{(j_o,i_o)} < J^{(k_o,i_o)}$, de-allocating the sequence $c^{(k_M)}$ defined by:

$$k_M = \arg_k \max_{k \in \Omega_{K-Q}} \left[J^{(k,i_o)}\right],$$

and allocating instead the sequence $c^{(k_m)}$ defined by:

$$k_m = \arg_k \min_{k \in \Omega_Q} \left[J^{(k,i_o)}\right].$$

34. **(Currently Amended)** A transmitter for a Multi-Carrier Code Division Multiple Access transmission system, that assigns one or more spreading sequences among a family of spreading sequences to a user of a Multi-Carrier Code Division Multiple Access transmission network, each element of said sequence being, at the level of a transmitter of said network, multiplied by a data item to be transmitted and then transmitted on a corresponding sub-carrier, the transmitter comprising:

means for assigning, to said user, said one or more spreading sequences; and

means for minimizing a function representing the interference between said one or more sequences, on the one hand, and spreading sequences of a predetermined set, on the other hand, said predetermined set being included in said family of spreading sequences

<u>wherein the means for minimizing a function dynamically selects the best sequences from the predetermined set of spreading sequences in the family of spreading sequences as</u>

<u>the number of needed sequences changes, and the number of selected sequences is less than or equal to the total number of spreading sequences.</u>